

CLAIM AMENDMENTS

1. **(Currently Amended)** An isolated DNA ~~sequence~~ molecule encoding a D-type cyclin selected from the group consisting of:

(a) ~~a DNA sequences comprising a nucleotide sequence~~ molecule encoding a protein comprising the amino acid sequence as ~~given~~ set forth in SEQ ID NO:2;

(b) ~~a DNA sequences~~ molecule comprising a nucleotide sequence as ~~given~~ set forth in SEQ ID NO:1; and

(c) ~~a DNA sequences~~ molecule encoding an amino acid sequence which is at least 50% identical to the amino acid sequence encoded by the DNA sequence of (a) or (b) and having the amino acid motif QLLAVACLSLAAXEET, wherein X is any amino acid and wherein the motif comprises zero or up to two mismatches ~~hybridizing under stringent hybridization conditions with the complementary strand of a DNA sequence as defined in (a) or (b);~~

~~wherein said stringent hybridization conditions comprise 4X SSC at 65° C or 50% formamide, 4X SSC at 42° C, followed by washing in 0.1X SSC at 65° C for one hour.~~

2. **(Currently Amended)** A method for identifying and obtaining a cyclin or a nucleic acid molecule encoding a cyclin wherein expression of the native gene ~~said nucleic acid molecule~~ encoding said cyclin is inducible by ~~a mitogenic agent~~ sucrose and/or cytokinin, said method comprising performing a two-hybrid screening assay wherein a cyclin- dependent kinase CDC2a is expressed as a bait and a cDNA from a cDNA library of a plant cell suspension is expressed as prey in a cell;

incubating the cell under conditions wherein the cell grows or survives [[or has enhanced growth or survival]] when the expressed ~~CDC2a~~ cyclin-dependent kinase binds a protein encoded by a cDNA from a cDNA library; and

selecting the growing or surviving cell and isolating the cyclin or nucleic acid molecule encoding the cyclin from the growing or surviving cell.

3. **(Currently Amended)** The method of claim 2, wherein said ~~CDC2a~~ cyclin-dependent kinase is CDC2aAt of *Arabidopsis thaliana*.

4. **(Currently Amended)** An isolated DNA ~~sequence~~ molecule encoding a cyclin and ~~inducible by a mitogenic agent obtainable~~ obtained by the method of claim 2 or 3.

5. **(Canceled)**

6. **(Currently Amended)** A vector comprising the DNA ~~sequence~~ molecule of claim 1.

7. **(Currently Amended)** The vector of claim 6 which is an expression vector wherein the DNA ~~sequence~~ molecule is ~~operatively~~ operably linked to one or more control sequences allowing the expression of said DNA ~~sequence~~ molecule in prokaryotic and/or eukaryotic host cells.

8. **(Previously Presented)** A host cell comprising the vector of claim 6.

9. **(Canceled)**

10. **(Canceled)** A method for the production of a cyclin encoded by a gene inducible by a mitogenic agent comprising culturing a host cell of any of claims 8, 32 or 34 under conditions allowing the expression of the protein and recovering the produced protein from the culture.

11. **(Canceled)**

12. **(Canceled)**

13. **(Canceled)**

14. **(Canceled)**

15. **(Canceled)**

16. **(Canceled)**

17. (Canceled)

18. (Canceled)

19. (Canceled)

20. (Canceled)

21. (Canceled)

22. (Canceled)

23. (Canceled)

24. (Canceled)

25. (Canceled)

26. (Canceled)

27. (Currently Amended) A diagnostic composition comprising the DNA sequence molecule of claim 1, wherein the DNA molecule is labeled and may therefore be detected and optionally suitable means for detection of said DNA sequence wherein the means for detection is a probe.

28. (Canceled)

29. (Canceled)

30. (Currently Amended) A vector comprising the DNA sequence molecule of claim 4.

31. (Currently Amended) The vector of claim 30 which is an expression vector wherein the DNA sequence molecule is ~~operatively~~ operably linked to one or more control sequences allowing the expression of said DNA sequence molecule in prokaryotic and/or eukaryotic cells.

32. (Previously Presented) A host cell comprising the vector of claim 6.

33. (Previously Presented) A host cell comprising the vector of claim 30.
34. **(Currently Amended)** A host cell comprising the DNA ~~sequence~~ molecule of claim 1.
35. **(Currently Amended)** A host cell comprising the DNA ~~sequence~~ molecule of claim 4.
36. (Previously Presented) The host cell of any of claims 8, 32 or 34 wherein the host cell is a bacterial, insect, fungal, plant or animal cell.
37. **(Currently Amended)** A diagnostic composition comprising a DNA ~~sequence~~ molecule of claim 4 and optionally suitable means for detecting said DNA ~~sequence~~ molecule wherein the means for detecting is a probe.
38. **(Currently Amended)** A method for ~~modulating plant cell cycle~~[[,]] promoting plant cell division, plant cell proliferation or growth which comprises ~~modulating~~ increasing the level or activity of a cyclin that binds CDC2a in a plant cell wherein said cyclin comprises the sequence set forth in SEQ ID NO:2.
39. **(Currently Amended)** A method for ~~modulating plant cell cycle~~[[,]] promoting plant cell division, plant cell proliferation, or growth which comprises ~~modulating~~ increasing the level or activity of a cyclin that binds CDC2a in a plant cell wherein said cyclin is encoded by:
- (a) a DNA sequences molecule ~~comprising a nucleotide sequence~~ encoding a protein comprising the amino acid sequence as ~~given~~ set forth in SEQ ID NO:2,
- (b) a DNA sequences molecule comprising a nucleotide sequence as ~~given~~ set forth in SEQ ID NO:1,
- (c) a DNA sequences ~~hybridizing under stringent hybridization conditions with the complementary strand of a DNA sequence as defined in (a) or (b) wherein said stringent~~

hybridization conditions comprise ~~4X SSC at 65° C or 50% formamide, 4X SSC at 42° C,~~
followed by washing in ~~0.1X SSC at 65° C for one hour~~ molecule encoding an amino acid
sequence which is at least 50% identical to the amino acid sequence encoded by the DNA
sequence of (a) or (b) and having the amino acid sequence motif QLLAVACLSLAAXEET,
wherein X is any amino acid and wherein the motif comprises zero or up to two mismatches.

40. **(Currently Amended)** The method of claim 39 wherein ~~modulating~~ increasing the level or activity of the cyclin that binds CDC2a is achieved by overexpressing one or more of said DNA sequences in a plant cell.

41. **(Cancel)** The method of claim 39 wherein modulating the level or activity of the cyclin that binds CDC2a is achieved by reducing expression by one or more said DNA sequences in a plant cell.

42. **(Currently Amended)** The isolated DNA ~~sequence~~ molecule of ~~claims claim~~ claim 1, wherein expression of the native gene ~~[[said DNA sequence]]~~ encoding ~~[[a]]~~ the cyclin is inducible induced by ~~a mitogenic agent~~ sucrose and/or cytokinin.

43. **(Cancel)** The isolated DNA sequence of claim 42 wherein the mitogenic agent is sucrose or cytokinin.

44. **(Currently Amended)** The isolated DNA ~~sequence~~ molecule of ~~any of claims~~ claim 1 ~~[[,]]~~ or 42 ~~or 43~~ which encodes a D-type cyclin.

45. **(Currently Amended)** The vector of claim 6 or 7 wherein expression of the ~~[[DNA]] sequence~~ native gene encoding ~~[[a]]~~ the cyclin is ~~[[inducible]]~~ induced by ~~mitogenic agents~~ sucrose or cytokinin.

46. **(Previously Presented)** The vector of claim 45 wherein the cyclin is a D-type cyclin.

47. (Previously Presented) The method of any one of claims 2, 38, 39, 40, or 41 wherein the cyclin encodes a D-type cyclin.

48. (New) A method for arresting cell division or preventing re-entry into the cell cycle, said method comprising reducing the level or activity of a cyclin that binds CDC2a in a plant wherein said cyclin comprises the sequence set forth in SEQ ID NO:2.

49. (New) A method for arresting plant cell division or preventing re-entry into the cell cycle, said method comprising reducing the level or activity of a cyclin that binds CDC2a in a plant cell wherein said cyclin is encoded by at least one of:

(a) a DNA molecule encoding a protein comprising the amino acid sequence as set forth in SEQ ID NO:2,

(b) a DNA molecule comprising a nucleotide sequence as set forth in SEQ ID NO:1, or

(c) a DNA molecule encoding an amino acid sequence which is at least 50% identical to the amino acid sequence encoded by the DNA sequence of (a) or (b) and comprising the amino acid sequence motif QLLAVACLSLAAKXEET, wherein X is any amino acid and wherein the motif comprises zero or up to two mismatches .

50. (New) The method of claim 49 wherein reducing the level or activity of a cyclin that binds CDC2a is achieved by reducing expression of one or more DNA sequences in a plant cell.

51. (New) A method for the production of a cyclin encoded by a gene inducible by sucrose and/or cytokinin, said method comprising culturing a host cell of any of claims 8, 32 or 34 under conditions allowing the expression of the protein and recovering the produced protein from the culture.